

*Tackling Invasive Non-Native Species in the UK Overseas Territories*

**Technical support to the Falkland Islands Government**

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Wednesday 4<sup>th</sup> April to Monday 16<sup>th</sup> April 2018

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## Executive summary

- A visit to provide technical support to the Falkland Islands Government took place from 4<sup>th</sup> to 16<sup>th</sup> April 2018.
- Meetings were held with key personnel in Falkland Islands Government, Falklands Conservation, South Atlantic Environment Research Institute, Government of South Georgia & the South Sandwich Islands, and Members of the Legislative Assembly.
- Field visits were made to ports of entry, a weed control site at Port Sussex, and two importers for fresh produce inspections.
- Key strengths of the biosecurity system are considered to be:
  - Good interagency and inter department cooperation
  - Good support from importers and members of the legislative assembly
- Key weaknesses of the biosecurity system are considered to be:
  - Lack of staff
  - Lack of detailed protocols and procedures
  - Lack of an overarching biosecurity policy framework
  - Lack of comprehensive biosecurity legislation
- A total of 27 recommendations have been made to build on the strengths and address the gaps in order to strengthen the biosecurity system: 17 for short-term technical improvements, and 10 for longer-term strengthening of the biosecurity system.
- Development of a biosecurity policy framework for the Falkland Islands is timely and is supported by the Island Plan, and Falkland Islands Biodiversity Framework.
- Existing staffing only allows for the day-to-day operation of a basic biosecurity programme, and additional staff would be required in order to grow the system. The Falkland Islands has one of the smallest provisions of biosecurity staffing amongst the Overseas Territories.
- Advice on the process of policy development is given, based on experience gathered from other Overseas Territories, as well as suggested elements for the resulting biosecurity framework.
- There are mutual benefits to be gained from a joint approach between the Governments of the Falkland Islands and South Georgia & the South Sandwich Islands through a number of biosecurity actions, including:
  - Messaging for in-bound travellers
  - Rodent control at ports in the Falklands
  - Provision of a heat treatment facility in Stanley
- Technical support will be given to the Falkland Islands in the form of a horizon scanning exercise taking place in October 2018, identifying the priority pathways for the introduction of high risk non-native invasive species.
- The results of the horizon scanning will help inform the future biosecurity system.

## Introduction

In 2016 Defra and the GB Non-native Species Secretariat (NNSS) secured £1 million funding from the FCO's Conflict, Stability and Security Fund (CSSF) for the project *Tackling Invasive Non-Native Species in the UK Overseas Territories* (the "OT Biosecurity project") over four years to help the development of comprehensive biosecurity for the Overseas Territories (OTs) by providing them with access to UK Government expertise on risk analysis, pathway management, pest identification, horizon scanning, contingency planning, rapid response capability and species management. Lack of up-to-date comprehensive biosecurity legislation was flagged by FIG during the biosecurity gap analysis undertaken by the OT Biosecurity Project in 2017 and is included as part of an application submitted to Public Administration International Ltd. for legislative support.

The NNSS was requested by the incumbent Falkland Islands Government (FIG) Biosecurity Officer to provide technical support under the project to FIG. Terms of reference for the visit were as follows:

- Advise on strengthening and implementing the framework and strategy actions through:
  - Reviewing the strengths and weaknesses of existing biosecurity provisions.
  - Identification of key areas of work to target for action, focussing resources on high risk areas to ensure work practices are efficient – 'work smarter not harder'.
  - Identification of priority actions, distinguishing short term (immediate and important) and long-term (requiring preparation and planning) needs.
  - Development of an implementation plan.
- Review rodent management and contingency plans.
- Assist FIG and the Biosecurity Officer in preparations for future, planned, project work: horizon scanning, legislative support, Fera and CEFAS support.
- Provide a concise report with practical recommendations to strengthen the existing biosecurity system.

The visit took place from Wednesday 4<sup>th</sup> to Monday 16<sup>th</sup> April 2018 and the visit programme is given in Annex 1. I was accompanied throughout the visit by Naomi Baxter, Biosecurity Officer with the Department of Agriculture (DoA).

In addition to the meetings and field visits, myself together with Naomi and Ross James of the Government of South Georgia & the South Sandwich Islands (GSGSSI), gave a public presentation on Wednesday 11th April at the Chamber of Commerce on "Biosecurity: protecting our islands" attended by 24 members of the public.

## Previous reviews

FIG has benefitted from technical advisory visits from the Ministry of Primary Industries of New Zealand twice in the past, in 2004 by Bruce Simpson and John Hellstrom (Simpson & Hellstrom, 2004) and in 2015 by Henk van Zyl (van Zyl, 2015). Simpson and Hellstrom spent two weeks in the Falklands, and van Zyl spent two months, consequently their reports are very comprehensive and include extensive recommendations for strengthening the biosecurity system. The main recommendations from the more recent report by van Zyl (2015) are summarised as follows:

- Develop comprehensive biosecurity legislation.
- Collect more data for use in risk assessment and introduce risk assessment in all pathways.
- Increase control over the highest risk pathways, namely the sea freight, cruise ship and military pathways.
- Implement more biosecurity treatment options.
- Review of the handling of biosecurity waste.
- Review the resources available for biosecurity.

A number of van Zyl's recommendations have been or are being implemented. I aimed to avoid repeating recommendations already made by Simpson & Hellstrom in 2004 or van Zyl in 2015, but rather to complement them and consider how they might be implemented.

In view of the anticipated changes in the biosecurity system and refinement in terms of what pathways are considered high risk, in this visit I focused two main aspects:

1. Pragmatic technical improvements in delivering biosecurity in immediate short term
2. Policy and strategy development in the longer term

## **Technical considerations**

Discussions were held with the biosecurity team, Naomi Baxter and Steve McLean, and with the veterinary and agricultural teams, Adam Dawes and Steve Pointing. Fresh produce inspections were observed at two importers, Stanley Growers and the Chandlery and biosecurity provisions discussed with the importers themselves. In addition, baggage inspection was observed at Mount Pleasant Airport (MPA) and discussions held with the customs officers present.

Current levels of biosecurity are considered satisfactory in that no new non-native species have established in the last few years in the Falkland Islands, as far as is known. The strengths and weaknesses of the current system are summarised below.

Strengths:

- A set of 18 import protocols have been developed, outlining the conditions for import of a range of commodities;

- The DoA, where the biosecurity team is based, is very supportive of them, and provides help with identification, technical advice, etc.;
- There is a good relationship between the biosecurity team and importers;
- Customs perform biosecurity functions at the airport and sea ports, in the absence of the biosecurity team;
- The biosecurity team is reasonably well equipped: microscope, camera, initial invertebrate reference collection, etc.;
- Some post-border actions are in place with regards post-border monitoring and the development of the first emergency response plan, working collaboratively with the Environment Department.

#### Weaknesses:

- The import protocols require revision, they are broadly worded and lack details;
- There are a number of weaknesses in the existing practices with regards imported fresh produce for human consumption:
  - There are no facilities to assist inspections;
  - There is no formalised fresh produce sampling regime distinguishing high and low risk produce so it is all treated the same. This is not cost-effective;
  - There is also no fresh produce inspection protocol or guidance to the inspector on what to look for, or how to identify pests of concern from post-harvest conditions.
- Resources are limited: the team consists of one full time and one part time officer. Staff can cope with routine inspections of fresh produce, together with some checks of timber and vehicles but resources do not allow further activities.

#### Produce for human consumption

There are four main importers of fresh produce (three commercial plus the MOD) who all source their produce from different suppliers. An import licence is required and basic import protocols exist. Produce arrives by both air and sea cargo, and quantities are relatively small. There is no biosecurity facility and produce is inspected in chillers at the importers' premises where newly imported produce is mixed with that from previous shipments. While mixing of checked and unchecked produce compromises biosecurity, any live infestations would be relatively immobile due to chilling.

Inspection consists of ad hoc spot checks, looking through the top layers of 1 to 3 boxes or sacks of produce. The extent of the checks for any one lot<sup>1</sup> varies with the inspectors' knowledge of where previous interceptions have taken place, with more extensive checks being made of produce known to have previously carried invertebrates. This knowledge is largely undocumented.

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<sup>1</sup> A "lot" is defined as the total amount of any one type of plant material which is clearly from the same source, for example variety A apples from one supplier is a different "lot" to variety B apples from the same supplier, or variety A apples from a different supplier.

Van Zyl noted the same issues and suggested a sampling strategy based on the Maximum Allowable Prevalence (MAP) (van Zyl, 2015, recommendation 49):

*The MAP for visually detectable regulated organisms on fresh fruit/vegetables is as follows:*

*“At a 95% confidence level, not more than 0.5% of the units in the consignment are infested (this equates to an acceptance level of zero units infested by regulated organisms in a sample size of 600 units”.*

Adopting this system for the small quantities being imported would require nearly 100% inspection of all fresh produce. This would be very difficult to deliver with existing DoA biosecurity staffing if any other biosecurity work was to be done, and is also impractical considering the location and facilities currently available for inspections of fresh produce. In addition, some categories of produce such as tropical fruit can be considered low risk in view of the temperate climate of the Falkland Islands, for example hard citrus (lemons and limes), stone fruit (peaches, nectarines, etc), mangoes and pineapples. Pests such as Tephritid fruit flies, mango seed weevil and pineapple mealybug would not survive in the Falklands and there is no tropical fruit production industry. Bell peppers on the other hand are known to carry pests such as caterpillars, and polytunnel production of bell peppers is an important commercial activity in the Falklands; imported bell peppers are therefore high risk and should be inspected more thoroughly.

Biosecurity St Helena had a similar problem and developed modified sampling tables for small quantities of fresh produce based on International Standard for Phytosanitary Measures No. 31, Methodologies for Sampling of Consignments; see Annex 3 and 4 for examples of sampling rates for high and medium risk product respectively. The previous biosecurity officer, Ross James, developed a simple plant material risk matrix based on basic criteria: for plants for propagation, how likely the plant material is to establish in the Falklands, and for fresh produce, how easy the produce is to inspect, and the previous history of interceptions. This risk matrix can be used to categorise fresh produce into high, medium and low risk.

***Recommendation 1.*** *Fresh produce should be categorised as high, medium or low risk using the simple risk matrix. The recommended sampling strategy is as follows:*

- *High risk produce: use standardised sampling tables such as those in Annex 3 or 4. Note that all units in cartons selected for inspection should be checked.*
- *Medium risk produce: spot checked as currently done.*
- *Low risk produce: subject to occasional spot checks.*

The resulting list can be revised following a planned horizon scanning exercise in October 2018 but in the interim be used to guide sampling and inspections. The aim of horizon scanning is to predict the likelihood of the arrival and establishment of new non-native species that are most likely to impact on biodiversity and ecosystems or impact socio-economically (agricultural production, livestock and public health) in the next 5 - 10 years.

The work covers all three environments (terrestrial, freshwater and marine) and also all species across the taxonomic spectrum (invertebrates, vertebrates and plants), with the exception of human, plant and animal pathogens. A summary of horizon scanning is given in Annex 2. Horizon scanning will provide the technical input required to inform the necessary biosecurity mitigation actions on the highest risk pathways and so help shape the future biosecurity programme.

DoA biosecurity staffing currently consists of one full time biosecurity officer, Naomi Baxter, and one part time biosecurity assistant, Steve McLean. Naomi is new and Steve is leaving in May to take up a new post and a new assistant is being recruited. New staff have no or limited biosecurity experience prior to taking up their posts, and in-post training is limited. Carrying out inspections with any confidence is difficult without detailed guidance.

***Recommendation 2.*** *A detailed inspection protocol should be developed, outlining step by step how to carry out fresh produce inspections, what to look for and what to do in the case of an interception.*

***Recommendation 3.*** *A reference folder should be developed consisting of short descriptions and pictures of the main pests of concern for each type of high risk produce, for the inspectors' use.*

***Recommendation 4.*** *A reference folder should be developed consisting of short descriptions and images of the common post-harvest storage conditions for the different types of produce.*

The 18 import protocols which exist are an excellent resource but need expanding into clear import health standards for the importation of fresh produce and other goods. Some goods require licensing which is probably unnecessary as the biosecurity risk is minimal, for example, UHT milk and hard cheeses. Defining appropriate import health standards to which importers must conform is all that is needed; in the case of hard cheeses the main criteria would be that they are commercially produced in premises which conform to EU standards or demonstrable equivalent.

***Recommendation 5.*** *Import health standards (IHS) should be developed in consultation with the relevant FIG departments, and publicised. The main categories of goods of biosecurity concern which should have IHS includes:*

- *Fresh produce for human consumption*
- *Plant material for propagation*
- *Meat, fish and dairy produce for human consumption*
- *Live animals*
- *Rock, stone, sand and gravel*
- *Composts, peat and soil conditioners*
- *Vehicles and machinery*
- *Shipping containers*

*The IHS will indicate in each case the appropriate standard expected from goods for importation, where a licence, phytosanitary or zoosanitary certificate is required, and where other documentation is required.*

Ideally, all fresh produce should be cleared before leaving the Customs bonded area. This would require provision of a biosecurity inspection facility in the bonded area and changes in the approach of how fresh produce is handled on arrival. Alternatively, a formal inspection area equipped with a bench and good lighting should be provided by each importer at their premises; note that this requirement is already specified in the import permit. Provision of appropriate inspection facilities (in whatever form it takes) needs to be considered as part of the future shape of the biosecurity system, but in the meantime, to assist current inspection practices, a small investment in a portable inspection table would considerably assist the work of the inspector and the effectiveness of inspections.

***Recommendation 6.*** *A folding white plastic table should be provided for the fresh produce inspections. This can be easily carried in the vehicle and placed for use in the chillers under the central lights. Boxes selected for inspection are placed on the table for inspection where they can be unpacked completely at a comfortable working height and under reasonable lighting. The table should be cleaned after each inspection.*

#### Other goods and general cargo

The DoA is currently working on a new initiative addressing the pathway of imported used vehicles. This includes an import permit system specifying import health standards and requiring cleaning and inspection either in the UK or on arrival. To facilitate this, wash-down areas are required near to both ports of entry by which vehicles arrive, the South American Atlantic Services yards (SAAS) and Mare Harbour.

***Recommendation 7:*** *Vehicle wash down areas should be established within the bonded areas at SAAS and Mare Harbour. Key features of a suitable area include the following:*

- *Area of hard standing of an appropriate size to treat the largest vehicle expected, and located away from normal tracks and roadways to minimise the risk of normal traffic picking up weed seeds or washings;*
- *Central drain, ideally equipped with filters to collect washings which may include weed seeds and invertebrates.*
- *Equipped with a pressure washer and vacuum cleaner;*
- *Protocol and facilities for the secure disposal of the contents of the vacuum cleaner and filters, and other waste collected from imported vehicles;*
- *Surrounding area to be kept weed free;*
- *Monitoring system to check for appearance of new weeds and invertebrates.*

Currently other goods such as building materials are spot-checked wherever possible in the bonded area before release. Shipping containers in general are not normally inspected. These goods and containers are potential pathways for the introduction of hitchhiker species such as spiders and ants; note that the European earwig *Forficula auricularia* was introduced

to the Falklands around 10 years ago and is now a major pest for polytunnel producers and a general nuisance pest. The pathway of introduction isn't known but the possibilities include as a stowaway in cargo. This pathway needs to be addressed. Developing import health standards will assist this (**recommendation 5**), supported by a programme of inspections. Horizon scanning will indicate the highest risk goods or vectors where activities should be targeted.

## Vessels

In 2017 the biosecurity team carried out a thorough survey on the hand baggage carried by disembarking passengers from a cruise ship and found high levels of non-compliance, with many people carrying food ashore, contrary to instructions (Ross James, pers. comm.). This is a concern, as food may include fruit, and dairy and meat products of unknown origin: food carried by cruise ships for on-board consumption is often bought from local suppliers at the different ports visited and will not necessarily be export standard.

***Recommendation 8:*** *There should be higher biosecurity presence for cruise ships, with spot checks of the hand baggage of disembarking passengers. Periodic leakage surveys (i.e. 100% inspections of hand baggage) should also be made to assess the levels of compliance.*

Note that with current staffing levels it is not possible for the biosecurity team to routinely attend the arrival of cruise ships.

The biosecurity team does not normally attend arriving yachts and relies on customs to include biosecurity in their checks and call biosecurity down if needed. As yachts may arrive at any time of day and will be visited by customs, this is considered an appropriate strategy, as long as customs are suitably trained.

In addition, one of the private marina owners is very vigilant and will call biosecurity if he considers a yacht is of concern.

## Airport

For travellers on the RAF airbridge from Brize Norton, biosecurity information is received along with the ticket as a section in the Falkland Islands Government Overseas (FIGO) Office document "Flights from the United Kingdom to the Falkland Islands". There is no biosecurity information or signage at Brize Norton, and the biosecurity video was not shown on the flight I travelled on; apparently the video will be loaded onto the aircraft system and be routinely shown after the next aircraft service.

***Recommendation 9:*** *Work with MOD to place biosecurity signage at Brize Norton check-in. This will serve both the Falklands and South Georgia, perhaps using the brand "Gateway to the Antarctic". Signage could take the form of colourful pull-up banners with simple messaging.*

**Recommendation 10:** *Work with FIG to revise the handout “Flights from the United Kingdom to the Falkland Islands” to include cleaning footwear and checking for seeds in clothing, footwear and baggage. Also work with the MOD to ensure the same messaging is included in the pre-deployment briefing notes for military personnel travelling to the Falklands.*

**Recommendation 11:** *The biosecurity video should be shown on the RAF flight, before arrival in the Falklands. In addition, the biosecurity video can be shown in arrivals at the baggage carousel.*

The Falklands also receive regular LATAM flights from Chile. In-flight films shown by LATAM are universal across all their flights and they are reluctant to add the Falklands biosecurity video as it would have to be shown on all flights across South America.

Biosecurity signage is present in arrivals at Mount Pleasant Airport (MPA) at the baggage carousel, and there is also a biosecurity amnesty bin. Some improvements could be made, for example the largest board is very wordy and placed where it is least likely to be seen. It should be replaced by simpler more visual messaging and placed near the amnesty bin.

For arriving passengers, biosecurity functions are normally delivered by customs who are providing an invaluable biosecurity service. However, this is a problem for them as they are already short-staffed and are frustrated at the high demands of the biosecurity checks which they feel are a distraction from their true function. The fact that Customs officers spend so much time carrying out biosecurity checks is a strong indication of the need for a biosecurity officer to attend incoming flights. Customs also suggested that the wording in the biosecurity questions on the passenger declaration form is causing confusion among passengers. In addition, the effectiveness of the procedures at the airport can be assessed by carrying out leakage surveys or technical audits. This should be done in collaboration with Customs as it will also inform them of likely slippage of items of customs concern.

**Recommendation 12:** *A biosecurity officer should attend incoming flights at the airport.*

**Recommendation 13:** *The wording of the biosecurity questions on the passenger declaration form should be revised, in collaboration with customs.*

**Recommendation 14:** *Together with Customs, the following should be periodically carried out:*

- *Leakage surveys: every nth (eg 20<sup>th</sup>) suitcase is scanned by the x-ray machine or searched.*
- *Technical audit: a certain number of items of biosecurity concern are planted in inbound baggage to see how many are detected.*

Finally, when carrying out inspections or otherwise fulfilling their functions, the biosecurity officers are equipped with DoA high-vis vests but otherwise have no uniform. A formal uniform would assist in raising the status of the biosecurity system, as well as increasing

awareness. In addition, biosecurity can involve making unpopular decisions and in a small community such as the Falklands it is good to separate the official from the personal, this can be done by wearing a uniform when carrying out official functions.

**Recommendation 15:** *The biosecurity team should have a uniform which is worn when carrying out official functions, such as attending in-bound flights and carrying out cruise ship inspections.*

### Post-border

Post-border monitoring is done in collaboration with the Environment Department and is being done for calafate weed *Berberis microphylla* which is the subject of an ongoing control programme. There is an alert system for the public to report any new invertebrates found, but otherwise there is no general monitoring to detect new invertebrate or weed species. A more structured approach addressing the high risk areas is recommended.

**Recommendation 16:** *A simple post-border monitoring programme should be initiated, targeting the high risk areas of the ports of entry. This may include:*

- *Periodic visual surveys for weeds around the gateway ports of entry, the South American Atlantic Service Ltd (SAAS) yards and Mare harbour*
- *Sticky insect traps in the main importer premises*

Post-border rapid response is done in collaboration with Environment Department and Falklands Conservation, who are in the process of developing a rapid response plan for new avian wildlife disease outbreaks. A trial is being carried out on the use of Virkon foot baths on one off-shore island, with the intention of extending it to the main islands, targeting “pinch points” such as the Falkland Islands Government Air Service (FIGAS) domestic airport, sites where large numbers of people access visitor sites with concentrations of wildlife across farmland, and in outer islands with regular visitors.

**Recommendation 17:** *A comprehensive set of rapid response plans should be developed, to cover at least the following events in addition to the one being developed:*

- *Animal disease outbreak of primarily agricultural concern*
- *Animal disease outbreak of primarily native wildlife species (seals and sea lions) concern*
- *Animal disease outbreak of public health concern*
- *Invertebrate crop pest*
- *Invertebrate species of concern for native wildlife*
- *Weed species*
- *Exotic vertebrate species (eg snake, frog, bird, etc.)*

It is important to distinguish the cases where the response to the detection of a new species can be handled by the appropriate department using existing resources, and the cases where additional resources (funding, staffing, equipment, etc.) are required to tackle the problem. Biosecurity St Helena has developed a set of emergency response plans which

can be used as examples, and these are available on the website <http://www.sainthelena.gov.sh/st-helena-biosecurity-service/>

## Biosecurity framework

At the higher level, the biggest asset of the biosecurity team is its good relationship with other agencies and departments, and acceptance by importers. This is a reflection on how the system is being delivered. Strengths and weaknesses are considered to be as follows;

Strengths:

- Good interagency cooperation and collaboration;
- Support from Members of Legislative Assembly (MLAs)
- Biosecurity is widely accepted by importers;
- There is interest and enthusiasm within FIG and other agencies in elevating biosecurity;
- Biosecurity is recognised in existing policy documents;
- A lot of communications work is already being done.

Weaknesses:

- Biosecurity doesn't have its own budget and is considered part of the Veterinary Services;
- Biosecurity staffing is limited to one full time and one part time staff member. This limits what can be achieved;
- Legislation is out-of-date and inadequate;
- Training is limited. There are no in-house training tools to assist new staff: note that the biosecurity officer is newly in post and the biosecurity assistant is shortly leaving, weakening the knowledge bases within the team.
- Data collection is poor overall, making it difficult to evidence successes and failures.

### Policy development

Development of a Falkland Islands biosecurity policy framework is timely as the biosecurity system has been in place for some time, new initiatives are being rolled out, and technical input is being provided to underpin a revision of the system through the OT Biosecurity Project. Provision of biosecurity to address the high priority threat of non-native species is included in the FIG Island Plan 2014 - 2018, and listed under the Falkland Islands Biodiversity Framework 2016 – 2030. Current priorities are captured in the Biosecurity and Invasives Strategy 2017 – 2020 which identifies priorities for work at a higher level.

***Recommendation 18:*** *A process of biosecurity policy framework development should be initiated.*

The biosecurity policy framework should set out the overall procedures or goals to be used to guide decision-making. Experience in other OTs indicates a number of elements for successful biosecurity policy development which are outlined in Annex 5. The resulting system should include the following within the policy framework:

- Provision of dedicated biosecurity facilities at the gateway ports of entry, SAAS yards and Mare harbour, and/or suitably equipped dedicated inspection facilities at importers' premises;
- In-bound baggage scanner at the airport to screen passengers baggage for items of biosecurity concern;
- Comprehensive legislation with sanctions and fines;
- Comprehensive biosecurity procedures and protocols to guide actions across the biosecurity continuum: pre-border, border and post-border;
- Early warning and rapid response protocols and capacity in the event of detection of a new incursion;
- Adequate staffing to deliver the programme;
- Internal biosecurity to protect rat-free islands and other pest or weed free areas;
- Marine biosecurity as well as terrestrial;
- Community support, based on a continual programme of stakeholder engagement and citizen science.

The development of a biosecurity policy will take time and biosecurity staff is limited, their time is totally taken up delivering the existing programme. A horizon scanning workshop planned for October 2018 will provide information on the high risk pathways and species which allows more targeted work, and the first stage will take place in October 2018, in the UK. In the interim in order to guide the current biosecurity work the DoA propose to hold a short internal consensus workshop with agriculture, livestock, public health, environment and customs to identify perceived priorities. This will form the immediate work plan and be revised with input from the horizon scanning and also policy work. The horizon scanning will be delivered under the OT Biosecurity Project and take place in the UK. Follow-up support will be provided by the NNSS to FIG to develop appropriate mitigation actions for the identified pathways.

It is a challenge to meet the demands of policy development, improvements in the technical delivery of biosecurity and deliver the ongoing biosecurity with the current levels of staffing. The Falkland Islands has one of the smallest provisions of biosecurity staffing amongst the OTs.

***Recommendation 19:*** *For at least the period of policy development and revision of the biosecurity system, biosecurity staffing should be increased. This could be by some or all of the following:*

- *Change the part time to a full time post.*
- *Provision of at least one more full time post.*

- *Provision of more part time biosecurity staff on a regular basis who can be trained and called on for specific tasks such as inspections of fresh produce. Biosecurity would be part of their formal job description.*
- *Provision of a short-term full time post to drive forward discrete aspects of the work, allowing day-to-day biosecurity work to continue in parallel*

**Recommendation 20:** *Biosecurity should have its own budget within the DoA to allow detailed operational planning.*

**Recommendation 21:** *Basic training modules should be developed for new staff including the general principles of biosecurity and specific guidance for carrying out inspections. In addition, opportunities should be sought for training and exposure visits with overseas biosecurity services.*

### Legislation

Comprehensive modern biosecurity legislation is required and a recommendation to this effect was included by both Simpson & Hellstrom (2004) and van Zyl (2015). Noxious Weeds Legislation is currently being drafted to support the ongoing calafate weed control programme, with wider application for other weed control programmes in the future.

The OT Biosecurity Project has applied for funding to assist the UK Overseas Territories with the development of model biosecurity legislation together with assistance with legal drafting for three Territories, including the Falkland Islands. Comprehensive model legislation will provide the full complement of regulations required for effective biosecurity, including components for phytosanitary and zoosanitary risks, border actions, post-border surveillance and emergency response, compliance, enforcement and sanctions. Once the model is complete, each Territory will access drafting support to analyse existing legislation and adapt the model to fill in the gaps in a manner appropriate to their specific needs. The Falklands' biosecurity legislation will be tailored to its specific requirements whilst becoming more in line with international best practice/standards.

This work is expected to begin in the current financial year, 2018/2019.

**Recommendation 22:** *Biosecurity legislation should be prioritised for endorsement by liaising with appropriate FIG departments.*

### Data collection

A certain amount of data is routinely collected and there is a database for interceptions. However, only interceptions of new species are recorded, so data on pathways with repeated interceptions of the same species is lost. In addition, data on the specific quantities of fresh produce is not entered in a database so it is not possible to evidence which produce varieties have most– or indeed no – interceptions. This information lies with the inspector and is lost when staff changes.

**Recommendation 23:** *Data should be routinely collected on:*

- *All inspections carried out*
- *All interceptions detected, of all species*
- *Quantities of the different varieties of fresh produce imported*
- *Quantities of other goods of specific biosecurity concern imported, such as vehicles.*

**Recommendation 24:** *A single Access database should be developed with linked fields where all biosecurity data can be captured.*

Note that entering data is time consuming and the current staffing levels will not allow this level of data entry. One suggestion is that data entry is part of the work of the student who joins the team for two months each year.

A good database will support the development of key performance indicators as part of a future biosecurity strategy.

#### Inter-agency and inter-government collaboration

One notable strength of biosecurity is good interagency and government collaboration. The biosecurity team sits within the DoA and works closely with Customs, the Environment Department and Falklands Conservation, and also has a positive relationship with the current MLAs. Part of the process of policy development will be the clarification of roles and functions among the different agencies.

The relationship with customs is very important. Customs should be involved in policy development to ensure a joint border agency approach. Biosecurity has had a Memorandum of Understanding with Customs since 2012 but it is now out-of-date.

**Recommendation 25:** *The Biosecurity - Customs MoU should be reviewed in collaboration with customs, revised as appropriate and renewed.*

Currently there is also a good relationship with the GSGSSI where the previous biosecurity officer, Ross James, now works. FIG and GSGSSI share pathways of introduction of new non-native species and therefore have shared biosecurity concerns. Tourists may visit the Falklands, visit outer islands, and go on to South Georgia. It makes sense to align biosecurity messaging between the Territories (for example: *Gateway to the Antarctic* and *Protect our Islands*) and ask the same from people, both visitors and importers.

Collaboration between the Territories has a number of mutual benefits. GSGSSI and FIG can continue to work together on managing the gateway ports with regards, for example rodent control at all ports, and spear thistle control at Mare Harbour. The GSGSSI is trialling the use of rodent detector dogs in Stanley as part of the pre-border biosecurity provisions, and two training sessions of the rodent detector dogs were observed, at Mare harbour and on the MV *Pharos SG* at the main port at the Falkland Interim Port and Storage System

(FIPASS). The trial looks very promising. The detector dogs also offer a valuable service for the FIG such as checking vessels travelling to rodent-free islands within the Falklands, confirming rodent-free islands as such, and also for general pest control. See Annex 6 for a list of possible activities; note that detector dogs can be trained to detect a range of scents and could therefore support other activities such as calafate weed control, earwig containment etc. if appropriately trained. This is an excellent opportunity for a joint government initiative, if GSGSSI are in agreement. Options for how this might be operated are being discussed with GSGSSI.

***Recommendation 26:*** *Rodent detector dogs should be considered as part of the FIG biosecurity system, operated jointly with GSGSSI; see Annex 6.*

Other biosecurity provisions of joint interest to FIG and GSGSSI are a heat treatment facility and general biosecurity inspection facility, both in Stanley. Currently, there is no heat treatment capacity in Stanley but such a facility would have wide potential benefits for both the Falklands and South Georgia. A simple facility could consist of a modified shipping container where temperatures could be held at both -20°C and +65°C. Examples of where heat treatment would be useful include: to treat infestations in imported building materials, personal effects, animal feed, sand, aggregate, composts, and vehicles. Heat treatment can also aid exports by treatment of dunnage; exported vehicles can also be treated. There are also potential domestic use to treat items for, for example woodworm, and general trade uses, for example for drying timber.

***Recommendation 27:*** *A heat treatment facility should be established in Stanley, with an appropriate operating system.*

Regular communication between DoA, GSGSSI and other key agencies such as the Environment Department is important to make sure things don't fall through the gaps.

## **Discussion**

Short term technical improvements can be achieved by some simple actions: provision of a folding inspection bench, and development of basic inspections protocols and such like. Not much is needed to make a relatively big jump forward to strengthening existing practices and reducing the risk of introduction of new non-native invasive species. The recommended longer term development of a comprehensive biosecurity framework is timely and has support internally within the DoA and externally from other agencies, importers and MLAs. The OT Biosecurity Project is also providing input over the next two years, in the form of horizon scanning and technical support. This will inform the policy process and help shape the future system.

The aim of both the short term and long term recommendations made here are that the biosecurity service will “work smarter not harder”. The resulting system is not expected to be about regulating the importation of more goods and commodities than are currently

regulated, but instead be about being far more strategic and cost-effective in terms of controls imposed, targeting high risk pathways and priority species.

Models for protocols exist and are readily available on-line from large countries such as New Zealand and Australia. Some specific examples are provided in this report from the comparable Territory of St Helena which have been adapted or specifically written for a small OT. The intention is not that the St Helena documents can or should be applied directly to the Falklands, they should be seen as examples of how biosecurity can be delivered in the context of a small Territory and suggestions for ideas. It must also be noted that Biosecurity St Helena can count on two full time staff plus up to six part time inspectors who can be called on to assist with inspections at the border as well as post-border activities. St Helena also has dedicated biosecurity facilities at the ports of entry for produce inspections. The Falklands has only one full time and one part time staff and no facilities.

The biggest weakness of the Falklands system is considered to be the small size of the biosecurity team. Existing staff have the capacity to deliver the system at the current limited level of inspections but will be very stretched to extend activities beyond, to a wider range of imported goods, achieve presence at the ports of entry, or post-border monitoring and rapid response. This reduces the effectiveness of the system and increases the risk of introduction of new invasive species. The development of protocols and procedures aimed at making the biosecurity work more effectively will be difficult as it takes times to do this, and the policy development process will be even more challenging. The fact that the current biosecurity team will shortly consist of entirely new staff is a further challenge, with the loss of accumulated experience and knowledge. FIG is urged to consider options to remedy this issue, at least for the period of policy development and to strengthen the technical side.

It must be noted that this report has focused on the terrestrial aspects of biosecurity because they are the ones currently developed and being implemented, but the marine side is not being ignored. Currently there are no hull inspections of vessels being carried out, but a longer term settlement plate project is being run by FIG, the Shallow Marine Surveys Group (SMSG) and Premier Oil, with plans to extend this over the coming years. The South Atlantic Environment Research Institute (SAERI) also intends to develop a frontline monitoring system for marine non-native species. This should be included in a future biosecurity system. It is also another example where there are joint benefits for both FIG and GSGSSI.

## **Acknowledgements**

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## References

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## Annex 1. Programme of visit

Date	Location	AM	PM
4 <sup>th</sup> April	Stanley	09:00 – 11:00 Initial meeting and discussions with Naomi  11:00 – 12:00 Participation in biosecurity catch-up meeting with MLAs Teslyn Barkman and Ian Hansen	13:00 – 14:00 Participation in biosecurity catch-up meeting with environment sector  14:00 – 16:30 Discussions with Naomi on the biosecurity system
5 <sup>th</sup> April	Stanley	08:30 – 15:30 Field visit to see Calafate control site, Port Sussex	Work with Government of South Georgia and South Sandwich Islands
6 <sup>th</sup> April	Stanley	Work with Government of South Georgia and South Sandwich Islands	13:00 – 14:00 Meet Paul Brickle, SAERI  14:00 – 15:00 Meet Adam Dawes, Dept of Agriculture (DoA)
7 <sup>th</sup> April	Free		
8 <sup>th</sup> April	Free		
9 <sup>th</sup> April	Stanley	09:00 – 11:00 DoA meeting with Naomi, review programme, review existing biosecurity documents, discussions.  11:00 – 12:00 Meet Steve Pointing, Senior Veterinary Officer.	13:00 – 15:30 Meet Tim Miller, Stanley Growers. Tour of site and inspection areas.  15:45 – 16:30 Discussions with Naomi on the biosecurity system
10 <sup>th</sup> April	Stanley	09:00 – 10:00 Fresh produce inspections, Stanley Growers  10:00 – 12:00 Meet Frin Ross and Esther Bertram, Falklands Conservation, and Sacha Cleminson RSPB	13:00 – 14:30 Fresh produce inspections, the Chandlery  14:30 – 16:30 Discussions with Naomi on the biosecurity system  Courtesy meeting with John Barton, Director of Natural Resources.
11 <sup>th</sup> April	Stanley	08:00 – 14:00 Preparation of draft report, SAERI	14:00 Meet Ross James GSGSSI and Naomi to prepare evening presentations.  17:00 Evening public presentation on biosecurity at Chamber of Commerce: NNSS, FIG and GSGSSI

12 <sup>th</sup> April	Stanley	09:00 – 10:00 Meet Denise Blake (Env officer)  General discussions with Naomi, DoA	15:00 – 17:00 Airport, to view biosecurity procedures at the inbound MOD flight from the UK
13 <sup>th</sup> April	Stanley	General discussions with Naomi, DoA  10:00 – 11:00 Meet Tsitsi Chitsiku and Matthew Jackson, legal drafters	13:00 Meet Ross James, GSGSSI, to discuss government synergies and shared concerns.  15:30 Meet Barry Rowlands, Chief Executive Officer, FIG.
14 <sup>th</sup> April	Free		
15 <sup>th</sup> April	Free		
16 <sup>th</sup> April	Stanley	09:00 – 10:00 Wrap-up meeting with DoA  General discussions with Naomi, DoA	12:00 – 16:30 Field trip to Kidney Island with rodent detector dogs
17 <sup>th</sup> April	Stanley	11:30 – 12:00 Meet Diane Simsovic, Head of Policy, FIG	Report writing
18 <sup>th</sup> April	Travel	Depart via Airbridge	

## Annex 2. Horizon scanning

### Background

In 2016 Defra and the GB Non-native Species Secretariat (NNSS) secured funding over four years (2016-2020) under the FCO's Conflict, Stability and Security Fund (CSSF) to help the development of comprehensive biosecurity for the Overseas Territories by providing them with access to UK expertise on risk analysis, pathway management, pest identification, horizon scanning, contingency planning, rapid response capability and species management. Work began with a gap analysis of the current biosecurity in each Overseas Territory. This found that the greatest gaps were in *horizon scanning* for future invasive species and pests and *analyses of the pathways of introduction*. Both these elements are key to underpinning future work which will aim to foster preparedness for the horizon species, developing cost-effective pathway action or contingency plans where appropriate for each Overseas Territory.

### What is horizon scanning?

The aim of horizon scanning is to predict the likelihood of the arrival and establishment of new non-native species that are most likely to impact biodiversity and ecosystems or impact socio-economically (agricultural production, livestock and public health) in the next 5-10 years.

The work covers all three environments (terrestrial, freshwater (where relevant) and marine) and also all species across the taxonomic spectrum (invertebrates, vertebrates and plants), with the exception of human, plant and animal pathogens.

### Why do it?

Being able to predict which damaging species are most likely to arrive in the next 5-10 years and by which pathways allows resources to be targeted strategically at these pathways. It allows limited resources to be allocated very cost-effectively.

### How is it done?

The concept of doing horizon scanning is quite simple and involves resolving four questions:

1. What non-native species are already present?
2. What are the pathways by which new non-native species could arrive, and where would they come from?
3. What species could use these pathways which aren't already present?
4. Which of these new non-native species are most likely to harm our island environment, economy or public health?

From the results of questions 1 to 4, a further question is then asked:

## 5. How can the risk of their arrival be reduced?

Resolving question 5 consists of developing a pathway action plan.

### The methodology proposed

The majority of the work will be carried out using the consensus methods for prioritisation of species developed in previous horizon scanning exercises by the Centre for Ecology and Hydrology (CEH) for Great Britain, Europe, and the Cyprus Sovereign Base Areas. Work will be overseen by a steering group composed of Defra, the Non-Native Species Secretariat, RSPB, IUCN and UKOTA.

The analysis will focus on species not present in the Overseas Territory in each case but occurring elsewhere in the region or at the sources of the pathways. Preliminary species lists will be compiled by selected taxonomic and environmental experts by referring to other lists and databases. To assist this process, a synthesis of existing pathways and transport links is provided by the Non-native Species Secretariat (NNSS) for each Territory.

Each exercise will consist of a workshop of the taxonomic experts and Territory representatives to agree a consensus of the species most likely be introduced, and the risk rankings based on their expert judgements. Workshops will take place in the territory or at an appropriate other location. The output will include a list of species of concern for each territory/cluster of territories.

Following the horizon scanning workshop, the NNSS will work with each Territory to assist the development of a pathway action plan to mitigate the identified risks.

### Annex 3. Sampling rates for high risk produce.

This sampling rate gives 99% confidence of detecting a 1% infestation.

Number of cartons to be sampled

Number of cartons	number of fruit per carton					
	10	11 to 20	25 to 35	45 to 55	60 to 70	80 to 100
5	all	all	all	all	all	all
10	all	all	8	7	6	5
15	12	10	10	7	6	5
20	18	16	11	8	6	5
25	20	17	11	8	6	5
30	23	19	12	9	7	5
40	27	21	12	9	7	5
50	30	23	13	9	7	5
60	32	24	13	10	7	5
70	34	24	14	10	7	5
80	35	25	14	10	7	5
90	36	25	14	10	7	5
100	37	25	14	10	7	6
125	38	26	14	10	7	6
150	39	28	15	10	7	6
200	40	28	15	10	7	6
250	42	30	15	10	7	6
300	42	30	15	10	7	6
350	43	30	15	10	7	6
400	43	30	15	10	7	6
450	44	30	15	10	7	6
500	44	30	15	10	7	6

## Annex 4. Sampling rates for medium risk produce

This sampling rate gives a 95% confidence of detecting a 2% infestation.

Number of cartons to be sampled

Number of cartons	number of fruit per carton								
	1	5 to 10	15	25	35	50 to 60	70 to 90	100 to 140	150 to 200
5	all	all	6	5	5	4	4	4	4
10	all	all	6	5	5	4	4	4	4
15	10	7	6	5	5	4	4	4	4
20	10	7	6	5	5	4	4	4	4
25	10	7	6	5	5	4	4	4	4
30	10	7	7	5	5	4	4	4	4
35	10	7	7	5	5	4	4	4	4
40	10	8	7	5	5	4	4	4	4
45	10	8	7	5	5	4	4	4	4
50	10	8	8	5	5	4	4	4	4
60	10	8	8	5	5	4	4	4	4
70	10	8	8	5	5	4	4	4	4
80	10	8	8	6	5	4	4	4	4
90	10	8	8	6	5	4	4	4	4
100	10	8	8	6	6	4	4	4	4
125	12	8	8	6	6	4	4	4	4
150	15	9	8	6	6	4	4	4	4
200	20	9	8	6	6	4	4	4	4

## **Annex 5. Recommendations for the development of a biosecurity policy.**

- Take time to give all stakeholders the opportunity to become involved; this may take months. The process is as important as the final document in many ways as this is the time when the people involved learn about biosecurity in a wider sense, and buy-in develops.
- Involve the key agencies in the policy team to oversee the process: agriculture, livestock, environment, public health and customs.
- Engagement with stakeholders and the wider community:
  - An early consultation with members of the wider community – preferably done informally through structured conversations or using the Survey Monkey tool to avoid the “interrogation” effect – is important, to gauge what people think about the biosecurity system and where they see the priorities. How much support for biosecurity is there in the community, where do they see the priorities, and what do they understand by the term “biosecurity”?
  - A communications plan can then be developed to address any issues raised. The aim of communication is to change behaviour, and the plan will outline what needs to be communicated and to who (the target audiences whose behaviour you want to change), and how they are best approached.
  - Make sure that feedback and views from stakeholders are incorporated as appropriate, and that they know this.
- If an influential person is not supportive, don’t challenge them or attempt to argue: listen and consider their views, look for common ground.
- Keep checking back with the MLAs to ensure that they are on-board with the process and progress.
- Include the development of key performance indicators to measure success and achievements.

## **Annex 6. Possible detector dog activities**

Possible activities for the detector dogs are as follows, relevant for South Georgia (SGSSI), the Falkland Islands (FI) or both (joint):

1. Check GSGSSI and BAS ships for rodents before departure (SGSSI)
2. Check cruise ships in Stanley for rodents before departure to SG (SGSSI)
3. Check any other vessel bound for SG for rodents (fishing, yacht) (SGSSI)
4. Part of incursion response on the ships (SGSSI)
5. Check rat-free islands for rodents (FI)
6. Supporting rodent eradications (FI)
7. Checking inter-island vessels for eg rodents (FI)
8. Support rodent control / pest control generally (FI)
9. Check gateway ports, FIPASS, Mare harbour for rodents (joint)
10. Outreach, especially children in schools (joint)
11. Capacity building in dog handling, training etc (joint)
12. Dogs can be trained to detect other species as well as rodents. Detector dogs can be extended to supporting activities such as:
  - Preventing earwigs from arriving in South Georgia (GSGSSI)
  - Calafate eradication (FI)
  - Border control: fruit and vegetable detection for inbound passengers from cruise ships and at the airport (FI)